



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2013-0196; Directorate Identifier 2013-NE-03-AD; Amendment 39-17376; AD 2013-05-04]**

**RIN 2120-AA64**

**Airworthiness Directives; Rolls-Royce plc Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Rolls-Royce plc (RR) RB211-Trent 970-84, RB211-Trent 970B-84, RB211-Trent 972-84, RB211-Trent 972B-84, RB211-Trent 977-84, RB211-Trent 977B-84, and RB211-Trent 980-84 turbofan engines. This AD requires inspection of the intermediate pressure compressor rear stub shaft (IPC RSS) piston ring. This AD was prompted by the failure of an oil pump drive shear neck due to a piston ring seal that was not seated properly in the IPC RSS groove. We are issuing this AD to prevent failure of the oil pump drive shear neck, which could result in loss of oil pressure in one or more engines and reduced control of the airplane.

**DATES:** This AD becomes effective [Insert date 15 days after date of publication in the FEDERAL REGISTER].

We must receive comments on this AD by [Insert date 45 days after date of publication in the FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of [Insert date 15 days after date of publication in the FEDERAL REGISTER].

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: (202) 493-2251.

For service information identified in this AD, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE248BJ; phone: 011-44-1332-242424; fax: 011-44-1332-245418, or email: [http://www.rolls-royce.com/contact/civil\\_team.jsp](http://www.rolls-royce.com/contact/civil_team.jsp). You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7125.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the

Docket Operations office (phone: (800) 647-5527) is the same as the Mail address provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7779; fax: 781-238-7199; email: frederick.zink@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA Airworthiness Directive 2012-0273, dated December 21, 2012, a Mandatory Continuing Airworthiness Information (referred to after this as “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

During take-off of an A380 on a customer acceptance flight, a low oil pressure warning message was observed by the flight crew. The take-off was aborted and the aircraft returned to the gate without further incident. Initial post-flight inspection of the engine revealed that the oil pump drive shear neck had failed. Upon further inspection of the engine, pieces of debris were found in the oil pump Internal Gear Box (IGB) rear scavenge screen and smaller pieces of profiled debris were found on the Electrical Magnetic Chip Detector (EMCD). From the material recovered, the origin was found to be the piston ring seal, which fits in the groove of the Intermediate Pressure Compressor Rear Stub Shaft (IPC RSS). This piston ring was introduced as part of Rolls-Royce Mod.72-G585 which incorporated a modified 52-spline IP Turbine Shaft, IPC RSS and coupling assembly. Therefore, only engines incorporating Mod.72-G585 are affected.

This condition, if not detected and corrected, could lead to loss of oil pressure on one or more of the engines, possibly resulting in reduced control of the aeroplane.

The failure to properly seat the piston ring seal in the groove of the IPC RSS occurs during assembly of the shaft. This could cause the movement of the ring out of the groove and resulting forces during operation may cause fracture of the ring. You may obtain further information by examining the MCAI in the AD docket.

### **Relevant Service Information**

RR has issued Repeater Technical Variance 129978, Issue 1, dated December 19, 2012 and Issue 2, dated December 20, 2012; Repeater Technical Variance 129940, Issue 1, dated December 20, 2012; and Repeater Technical Variance 129994, Issue 1, dated December 19, 2012. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

### **FAA's Determination and Requirements of this AD**

This product has been approved by the United Kingdom and is approved for operation in the United States. Pursuant to our bilateral agreement with the European Community, EASA has notified us of the unsafe condition described in the MCAI and service information referenced above. We are issuing this AD because we evaluated all information provided by EASA and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design. This AD requires inspection of the IPC RSS piston ring.

### **Differences Between the AD and the MCAI or Service Information**

This AD requires compliance for all engines within 50 cycles of the effective date of this AD. The MCAI requires a staggered compliance interval based on the number of

affected engines on the airplane. Our AD uses a more conservative compliance time because there are no engines installed on aircraft of U.S. registry that will be affected.

#### **FAA's Determination of the Effective Date**

No domestic operators use this product. Therefore, we find that notice and opportunity for prior public comment are unnecessary and that good cause exists for making this amendment effective in less than 30 days.

#### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety, and we did not precede it by notice and opportunity for public comment. We invite you to send any written relevant data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2013-0196; Directorate Identifier 2013-NE-03-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the Web site, anyone can find and read the comments in any of our dockets, including, if provided, the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78).

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new AD:

2013-05-04 **Rolls-Royce plc**: Amendment 39-17376; Docket No. FAA-2013-0196; Directorate Identifier 2013-NE-03-AD.

#### **(a) Effective Date**

This airworthiness directive (AD) becomes effective [Insert date 15 days after date of publication in the FEDERAL REGISTER].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to Rolls-Royce plc (RR) RB211-Trent 970-84, RB211-Trent 970B-84, RB211-Trent 972-84, RB211-Trent 972B-84, RB211-Trent 977-84, RB211-Trent 977B-84, and RB211-Trent 980-84 turbofan engines that incorporate RR

production Modification 72-G585 or modified in-service through RR Service Bulletin (SB) 72-G585, any revision, with a Module 33 installed having a serial number (S/N) prior to HC0320, except S/Ns HC0277, HC0281, HC0294, HC0301, HC0309, HC0313, HC0315, and HC0318.

**(d) Reason**

This AD was prompted by the failure of an oil pump drive shear neck due to a piston ring seal that was not seated properly in the intermediate pressure compressor rear stub shaft (IPC RSS) groove. We are issuing this AD to prevent failure of the oil pump drive shear neck, which could result in loss of oil pressure in one or more engines and reduced control of the airplane.

**(e) Actions and Compliance**

Unless already done, do the following.

(1) Within 50 engine flight cycles after the effective date of this AD, inspect the IPC RSS piston ring in accordance with the instructions of paragraph (d)(2) of RR Repeater Technical Variance 129978, Issue 2, dated December 20, 2012.

(2) For an engine that is not in service on the effective date of this AD, before returning the engine to service, inspect the IPC RSS piston ring on-wing in accordance with paragraph (d)(2) of RR Repeater Technical Variance 129978, Issue 2, dated December 20, 2012; or in shop using paragraph (d) of RR Repeater Technical Variance 129994, Issue 1, dated December 19, 2012.

(3) If, during the inspections required by paragraph (e) of this AD, you find that the piston ring seal is not seated properly in the IPC RSS groove or is not intact, replace the piston ring seal or piston ring assembly before returning the engine to service.



**(f) Credit for Previous Actions**

If you performed the inspection in paragraph (e) of this AD before the effective date of this AD in accordance with RR Repeater Technical Variance 129978, Issue 1, dated December 19, 2012; RR Repeater Technical Variance 129940, Issue 1, dated December 20, 2012, or Airbus QSR RR/L/EN/12-0005, as applicable, you have met the inspection requirement of this AD.

**(g) Alternative Methods of Compliance (AMOCs)**

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

**(h) Related Information**

(1) For more information about this AD, contact Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7779; fax: 781-238-7199; email: frederick.zink@faa.gov.

(2) Refer to MCAI European Aviation Safety Agency AD 2012-0273, dated December 21, 2012, for related information.

**(i) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) RR Repeater Technical Variance 129994, Issue 1, dated December 19, 2012.

(ii) RR Repeater Technical Variance 129978, Issue 2, dated December 20, 2012.

(3) For service information identified in this AD, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE248BJ; phone: 011-44-1332-242424; fax: 011-44-1332-245418, or email: [http://www.rolls-royce.com/contact/civil\\_team.jsp](http://www.rolls-royce.com/contact/civil_team.jsp).

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(5) You may view this service information at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on March 1, 2013.

Robert J. Ganley,  
Acting Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.

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